

AN AUSTRALIAN AMPHIPORA.

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(Plates xlv.-xlv.)

In his "Monograph of the British Stromatoporoids," Prof. H. A. Nicholson said, "so far as known *Amphipora* is represented by one species only, viz.: the form described by Phillips under the name of *Caanopora ramosa* (Fig. and Descript. Pal. Foss., p. 19.) This remarkable species occurs in vast numbers in the Devonian Rocks of Germany and Devonshire, apparently occupying in the former region, as probable in the latter also, a definite horizon in the upper portion of the Middle Devonian series (the *Ramosa-Bänke* of Schulz)."¹

The researches of Mr. A. J. Shearsby, of Yass, have revealed many interesting fossils from the rich Murrumbidgee beds, not the least interesting being that about to be described.

In *A. ramosa*, Phillips the cœnosteum, or calcareous skeleton, is in the form of slender cylindrical stems, which may or may not increase by dichotomy. Each branch is occupied by a longitudinal, axial, central canal, or tube, which may be intersected by tabulæ, transverse or funnel-shaped. The general skeletal tissue is of the Stromatoporoid type, continuously reticulated, but compact instead of being minutely porous. Irregular zoöidal tubes radiate outwards from the axial tube to open on the surface by definite apertures. The appearance of the cœnostial surface varies, either these apertures are visible with vermiculate or tuberculate margins, or the cylindrical branches are surrounded by a zone of lenticular vesicles, enveloped by a delicate apparently imperforate calcareous membrane. The general tissue is completely reticulate and there are neither radial pillars nor concentric laminae as distinct structures (*Nicholson*.)

¹ Nicholson—Mon. Brit. Stromatoporoids, Pt. i, 1886, p. 109.

We may now ascertain how far the Murrumbidgee form agrees with this definition. In the first place, however, all macroscopic characters must be omitted as the various cœnostem fragments are matted together in black limestone, and not weathered-out. The longest measurable fragment is 35mm., and the general diameter of the branches 2mm.

In viewing a transverse section the agreement with the structure of *A. ramosa* as portrayed in Prof. Nicholson's figures² is remarkable. The axial tube is always visible, and of comparatively large size. This is surrounded by the sectioned zoöidal tubes of variable size and outline, piercing the homogenous compact (in fact dense) skeletal tissue. Nicholson described two conditions of the surface, as already explained, both of which may be seen in our sections. In some instances the peripheral ends of the zoöidal tubes are visible as clear cellular spaces, like those of an ordinary ramose coral, more or less quadrangular in outline; these then represent that condition of *Amphipora* in which the surface apertures of the tubes are not covered by a thin membrane. In other sectioned branches the peripheral area or ring is occupied by vesicles over the greater portion of its extent, in conjunction with other vesicular tissue in the before-mentioned zoöidal tubes; such may possibly represent the second condition of *Amphipora* in which the apertures are covered with a membrane. The tissues are all compact and opaque, there is no trace of porosity, and I have failed to distinguish tabulæ.

In longitudinal sections I found it very difficult to exactly locate the axial tube. This arose no doubt from the various angles at which the branches are disposed in the matrix. All the characters described under the transverse section are repeated here.

A comparison with Prof. Nicholson's figures (two of which are reproduced for comparison) with those now given, will at once indicate the close agreement there is between the two forms—European and Australian. Whether other forms have been described since he wrote, I am unaware, but if his statement still holds good that *A. ramosa* is the only known species so far, the present fossil will be a welcome addition and may be

² Nicholson—*Loc. cit.*, pl. ix., fig. 3, pl. xxix., figs. 5 and 6.

known as *A. australasica*. Possibly a second species is known, for Mr. F. Chapman has recorded "a small digitate (?) stromatoporoid bearing some resemblance to *Amphipora*," from the Aberfeldy River, Co. Tangil, Victoria³.

Loc.—Quarry, one mile west-south-west of Style's House, near Boambolo Crossing, Murrumbidgee River.

Hor.—In all probability this fossil is from Mr. L. F. Harper's Glen Bower Series, a "small inlier of Silurian rocks found in the porphyry intrusion south of Mr. Style's house, in Portion 5, Pa. Cavan"⁴, which accords fairly well with Mr. Shearsby's locality.

³ Chapman—Rec. Geol. Survey Vict., ii., pt. 1, 1907, p. 68.

⁴ Harper—Rec. Geol. Survey N.S. Wales, ix., pt. 1, 1909, p. 39, map ii.

